

Bicyclic acetals: biological relevance, scaffold analysis, and applications in Diversity-Oriented Synthesis

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^c School of Chemistry, Department of Pharmacy, Universidad Nacional Autónoma de México, Avenida Universidad 3000, Mexico City 04510, Mexico

ELECTRONIC SUPPLEMENTARY INFORMATION

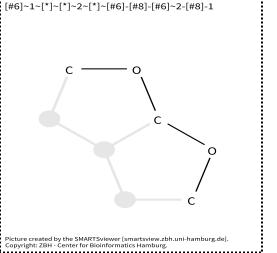
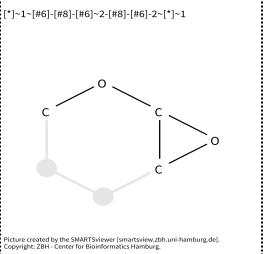
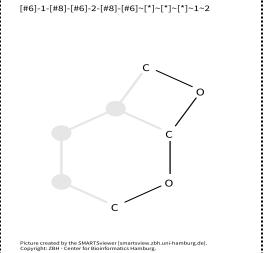
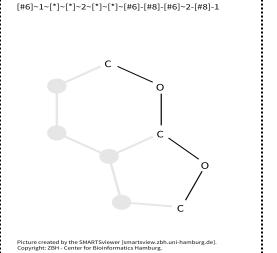
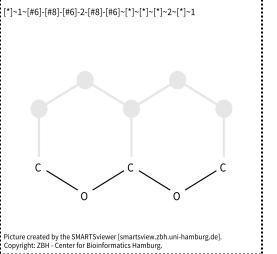
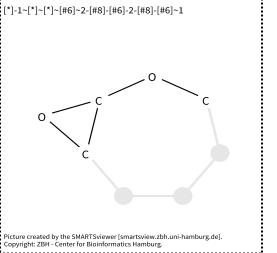
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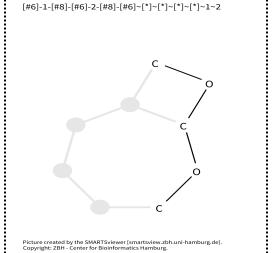
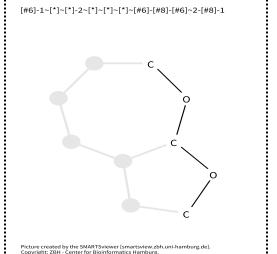
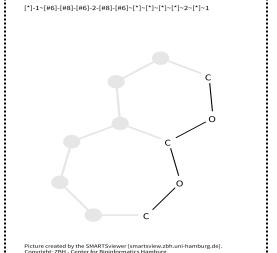
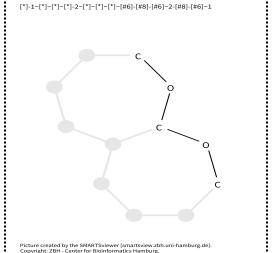
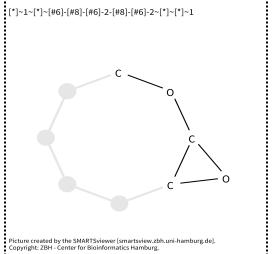
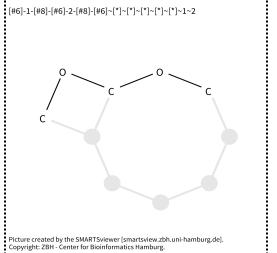
SMARTS code of all the 68 possible fused, spiro and bridged bicyclic acetals containing rings composed by 3 to 8 atoms

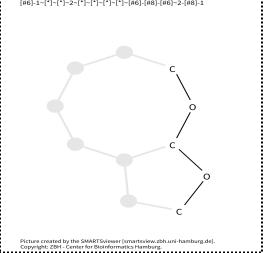
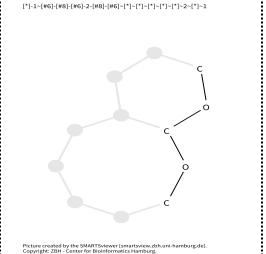
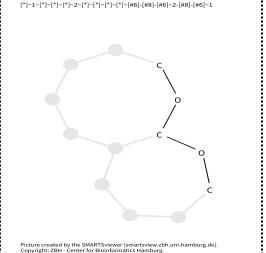
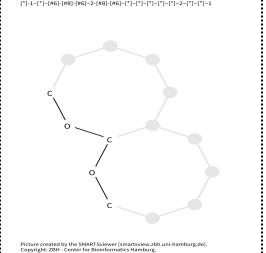
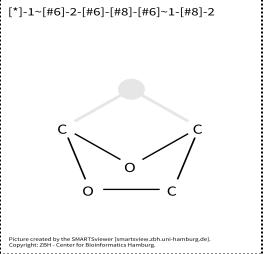
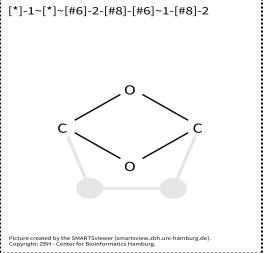
SMARTS

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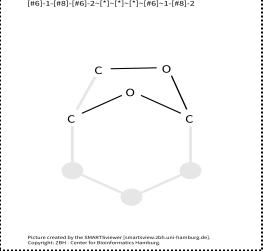
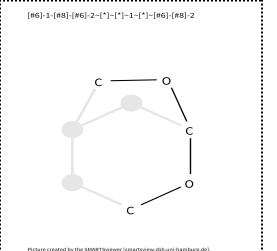
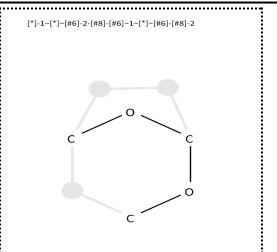
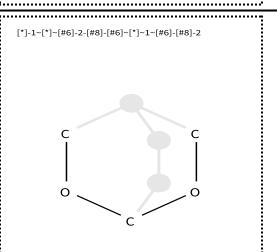
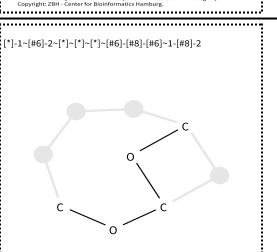
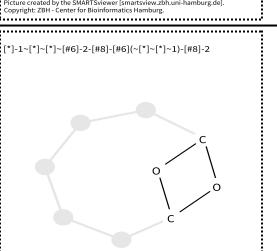
"Rule"	"Class"	"SMARTS Viewer Representation"	"SMARTS"
[3,3]	Fused bicyclic acetal	<p>[#8]-1-[#6]-2-[#8]-[#6]-1-2</p> <p>Picture created by the SMARTSViewer (smartsviewer.zbh.uni-hamburg.de). Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[#8]-1-[#6]-2-[#8]-[#6]-1-2
[4,3]	Fused bicyclic acetal	<p>[#6]-1-[#8]-[#6]-2-[#8]-[#6]~1-2</p> <p>Picture created by the SMARTSViewer (smartsviewer.zbh.uni-hamburg.de). Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[#6]-1-[#8]-[#6]-2-[#8]-[#6]~1-2
[4,4]	Fused bicyclic acetal	<p>[#6]-1-[#8]-[#6]-2-[#8]-[#6]~[*]~1-2</p> <p>Picture created by the SMARTSViewer (smartsviewer.zbh.uni-hamburg.de). Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[#6]-1-[#8]-[#6]-2-[#8]-[#6]~[*]~1-2
[5,3]	Fused bicyclic acetal	<p>[#6]~1~[*]~[#6]-2-[#8]-[#6]-2-[#8]-1</p> <p>Picture created by the SMARTSViewer (smartsviewer.zbh.uni-hamburg.de). Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[#6]~1~[*]~[#6]-2-[#8]-[#6]-2-[#8]-1
[5,4]	Fused bicyclic acetal	<p>[#6]-1[#8]-[#6]-2-[#8]-[#6]~[*]~1~2</p> <p>Picture created by the SMARTSViewer (smartsviewer.zbh.uni-hamburg.de). Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[#6]-1[#8]-[#6]-2-[#8]-[#6]~[*]~1~2

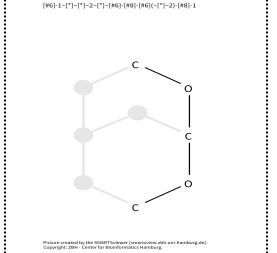
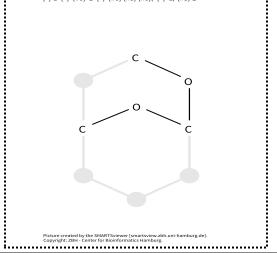
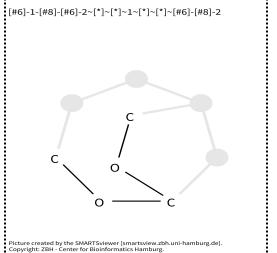
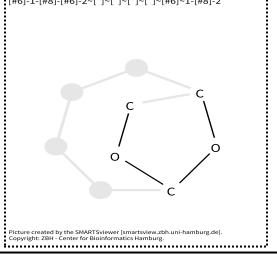
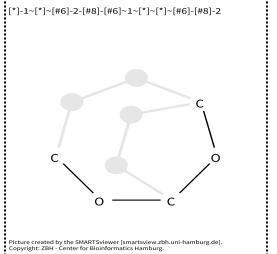
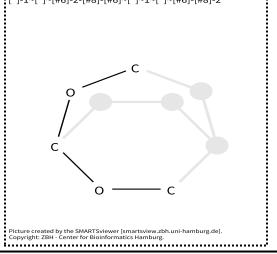
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[6,3]	Fused bicyclic acetal	 <p>Picture created by the SMARTSViewer (smartsviewer.zbh.uni-hamburg.de). Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[*]~1~[#6]-[#8]-[#6]~2-[#8]-[#6]-2-[*]~1
[6,4]	Fused bicyclic acetal	 <p>Picture created by the SMARTSViewer (smartsviewer.zbh.uni-hamburg.de). Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[#6]-1-[#8]-[#6]-2-[#8]-[#6]~[*]~[*]~1~2
[6,5]	Fused bicyclic acetal	 <p>Picture created by the SMARTSViewer (smartsviewer.zbh.uni-hamburg.de). Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[#6]~1~[*]~[*]~2~[*]~[#6]-[#8]-[#6]-2-[#8]-1
[6,6]	Fused bicyclic acetal	 <p>Picture created by the SMARTSViewer (smartsviewer.zbh.uni-hamburg.de). Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[*]~1~[#6]-[#8]-[#6]-2-[#8]-[#6]~[*]~[*]~2~[*]~1
[7,3]	Fused bicyclic acetal	 <p>Picture created by the SMARTSViewer (smartsviewer.zbh.uni-hamburg.de). Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[*]-1~[*]~[*]~[#6]-2-[#8]-[#6]-2-[#8]-[#6]-1

"Rule"	"Class"	"SMARTS Viewer Representation"	"SMARTS"
[7,4]	Fused bicyclic acetal	 <p>(#6)-1-{#8}-[#6]-2-(#8)-{#6}-(*)-()-()-1~2 Picture created by the SMARTSViewer (smartsviewer.zbh.uni-hamburg.de). Copyright © ZBH - Center for Bioinformatics Hamburg.</p>	[#6]-1-[#8]-[#6]-2-[#8]-[#6]~[*]~[*]~[*]~[*]~1~2
[7,5]	Fused bicyclic acetal	 <p>[#6]-1-()-()-2-()-()-1-[#6]-[#6]-[#8]-1 Picture created by the SMARTSViewer (smartsviewer.zbh.uni-hamburg.de). Copyright © ZBH - Center for Bioinformatics Hamburg.</p>	[#6]-1~[*]~[*]~[*]~[*]~[*]~[#6]-[#8]-[#6]~[*]~[*]~[*]~[*]~1
[7,6]	Fused bicyclic acetal	 <p>(*]-1-[#6]-[#8]-[#6]-2-[#8]-[*]-1-()-()-1~2~[*]-1 Picture created by the SMARTSViewer (smartsviewer.zbh.uni-hamburg.de). Copyright © ZBH - Center for Bioinformatics Hamburg.</p>	[*]-1~[#6]-[#8]-[#6]-2-[#8]-[#6]~[*]~[*]~[*]~2~[*]~1
[7,7]	Fused bicyclic acetal	 <p>(*)-1-()-()-2-()-()-1-[#6]-[#8]-[#6]-2-(#8)-[#6]-1 Picture created by the SMARTSViewer (smartsviewer.zbh.uni-hamburg.de). Copyright © ZBH - Center for Bioinformatics Hamburg.</p>	[*]-1~[*]~[*]~[*]~[*]~[*]~[*]~[#8]-[#6]~2-[#8]-[#6]~1
[8,3]	Fused bicyclic acetal	 <p>(*]-1-()-[#6]-[#8]-[#6]-2-[#8]-[#6]-2-()-()-1 Picture created by the SMARTSViewer (smartsviewer.zbh.uni-hamburg.de). Copyright © ZBH - Center for Bioinformatics Hamburg.</p>	[*]~1~[*]~[*]~[#6]-[#8]-[#6]-2-[#8]-[#6]-2~[*]~[*]~1
[8,4]	Fused bicyclic acetal	 <p>[#6]-1-[#8]-[#6]-2-[#8]-[#6]-(*)-()-()-1~2 Picture created by the SMARTSViewer (smartsviewer.zbh.uni-hamburg.de). Copyright © ZBH - Center for Bioinformatics Hamburg.</p>	[#6]-1-[#8]-[#6]-2-[#8]-[#6]~[*]~[*]~[*]~[*]~[*]~1~2

"Rule"	"Class"	"SMARTS Viewer Representation"	"SMARTS"
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[8,6]	Fused bicyclic acetal	 Picture created by the SMARTS viewer (smartsview.dbs.uni-hamburg.de).	[*]-1~[#6]-[#8]-[#6]-2-[#8]- [#6]~[*]~[*]~[*]~[*]~2~[*]~1
[8,7]	Fused bicyclic acetal	 Picture created by the SMARTS viewer (smartsview.dbs.uni-hamburg.de).	[*]~1~[*]~[*]~2~[*]~[*]~[*]~[*] [#8]-[#6]~2-[#8]-[#6]~1
[8,8]	Fused bicyclic acetal	 Picture created by the SMARTS viewer (smartsview.dbs.uni-hamburg.de).	[*]-1~[*]~[#6]-[#8]-[#6]~2-[#8]- [#6]~[*]~[*]~[*]~[*]~2~[*]~1
2,5-dioxabicyclo[2.1.1]hexane	Bridged bicyclic	 Picture created by the SMARTS viewer (smartsview.dbs.uni-hamburg.de). Copyright 2011 - Center for Bioinformatics Hamburg.	[*]-1~[#6]-2-[#6]-[#8]-[#6]~1- [#8]-2
5,6-dioxabicyclo[2.2.1]hexane	Bridged bicyclic	 Picture created by the SMARTS viewer (smartsview.dbs.uni-hamburg.de). Copyright 2011 - Center for Bioinformatics Hamburg.	[*]-1~[*]~[#6]-2-[#8]-[#6]~1- [#8]-2

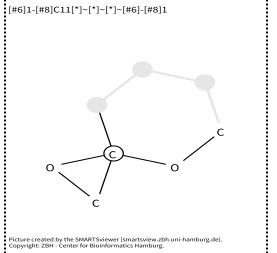
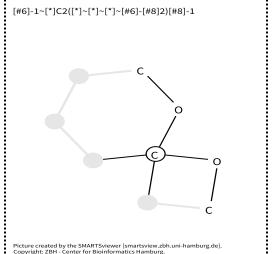
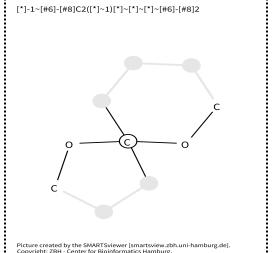
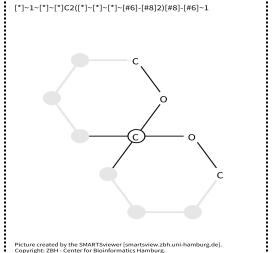
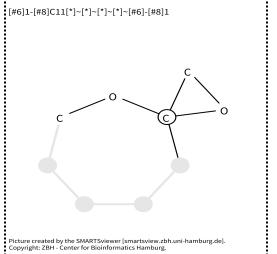
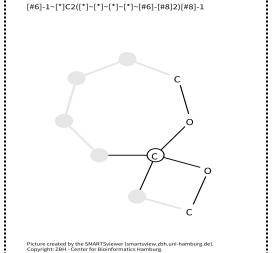
"Rule"	"Class"	"SMARTS Viewer Representation"	"SMARTS"
6,7-dioxacyclo[3.1.1]heptane	Bridged bicyclic	<p>(*).1~(*).[#6].2~[#6].(#6)(~(*).~[#8]).2</p> <p>Picture created by the SMARTSviewer (smartsviewer.zbh.uni-hamburg.de). Copyright 2011 - Center for Bioinformatics Hamburg.</p>	[*].1~[*].~[#6].2~[#8].-[#6] (~[*].~1)-[#8].2
2,6-dioxabicyclo[3.1.1]heptane	Bridged bicyclic	<p>(*).1~[#6].2~[*].-[#6].[#6].1~[#8].2</p> <p>Picture created by the SMARTSviewer (smartsviewer.zbh.uni-hamburg.de). Copyright 2011 - Center for Bioinformatics Hamburg.</p>	[*].1~[#6].2~[*].~[#6].-[#8].-[#6].~1~[#8].2
2,6-dioxabicyclo[2.2.1]heptane	Bridged bicyclic	<p>[#6].1~[#8].[#6].2~[*].~1~[#6].-[#8].2</p> <p>Picture created by the SMARTSviewer (smartsviewer.zbh.uni-hamburg.de). Copyright 2011 - Center for Bioinformatics Hamburg.</p>	[#6].1~[#8].-[#6].~2~[*].~[*].~1~[#6].-[#8].2
2,7-dioxabicyclo [2.2.1]heptane	Bridged bicyclic	<p>(*).1~(*).[#6].2~[#8].[#6].1~[#8].2</p> <p>Picture created by the SMARTSviewer (smartsviewer.zbh.uni-hamburg.de). Copyright 2011 - Center for Bioinformatics Hamburg.</p>	[*].1~[*].~[#6].2~[#8].-[#6].~1~[#8].2
2,7-dioxabicyclo[4.1.1]octane	Bridged bicyclic	<p>(*).1~[#6].2~[*].~[*].~[#6].-[#8].1~[#8].2</p> <p>Picture created by the SMARTSviewer (smartsviewer.zbh.uni-hamburg.de). Copyright 2011 - Center for Bioinformatics Hamburg.</p>	[*].1~[#6].2~[*].~[*].~1~[#6].-[#8].-[#6].~1~[#8].2
7,8-dioxabicyclo[4.1.1]octane	Bridged bicyclic	<p>[#8].1~[#6].2~[*].~[*].~[*].~[#6].1~[#8].2</p> <p>Picture created by the SMARTSviewer (smartsviewer.zbh.uni-hamburg.de). Copyright 2011 - Center for Bioinformatics Hamburg.</p>	[#8].1~[#6].2~[*].~[*].~[*].~[*].~[#6].1~[#8].2

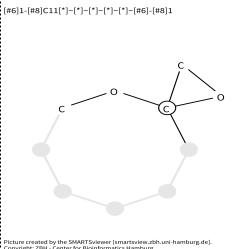
"Rule"	"Class"	"SMARTS Viewer Representation"	"SMARTS"
6,8-dioxabicyclo[3.2.1]octane	Bridged bicyclic	<p>[#6]-1-[#8]-[#6]-2-[*]-[*]-[*]-[#6]-1-[#8]-2</p>  <p>Picture created by the SMARTS viewer (smartsvewer.zbh.uni-hamburg.de). Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[#6]-1-[#8]-[#6]-2~[*]~[*]~[*]~[#6]~1-[#8]-2
2,7-dioxabicyclo[3.2.1]octane	Bridged bicyclic	<p>[#6]-1-[#8]-[#6]-2-[*]-[*]-1-[*]-[#6]-[#8]-2</p>  <p>Picture created by the SMARTS viewer (smartsvewer.zbh.uni-hamburg.de). Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[#6]-1-[#8]-[#6]-2~[*]~[*]~1~[*]~[#6]-[#8]-2
2,8-dioxabicyclo[3.2.1]octane	Bridged bicyclic	<p>[*]-1~[*]~[#6]-2-[#8]-[#6]~1~[*]-[#6]-[#8]-2</p>  <p>Picture created by the SMARTS viewer (smartsvewer.zbh.uni-hamburg.de). Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[*]-1~[*]~[#6]-2-[#8]-[#6]~1~[*]~[#6]-[#8]-2
2,6-dioxabicyclo[2.2.2] octane	Bridged bicyclic	<p>[*]-1~[*]-[#6]-2-[#8]-[#6]-[*]-1-[#6]-[#8]-2</p>  <p>Picture created by the SMARTS viewer (smartsvewer.zbh.uni-hamburg.de). Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[*]-1~[*]~[#6]-2-[#8]-[#6]~1~[*]~[#6]-[#8]-2
2,8-dioxabicyclo[5.1.1] nonane	Bridged bicyclic	<p>[*]-1-[#6]-2-[*]-[*]-[*]-[#6]-[#6]-[#6]-1-[#8]-2</p>  <p>Picture created by the SMARTS viewer (smartsvewer.zbh.uni-hamburg.de). Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[*]-1~[#6]-2~[*]~[*]~[*]~[#6]-[#8]-[#6]~1-[#8]-2
8,9-dioxabicyclo[5.1.1]nonane	Bridged bicyclic	<p>[*]-1~[*]-[*]-[#6]-2-[#8]-[#6]-[*]-[*]-1-[#8]-2</p>  <p>Picture created by the SMARTS viewer (smartsvewer.zbh.uni-hamburg.de). Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[*]-1~[*]~[*]~[#6]-2-[#8]-[#6] (~[*]~[*]~1)-[#8]-2

"Rule"	"Class"	"SMARTS Viewer Representation"	"SMARTS"
2,8-dioxabicyclo[3.3.1]nonane	Bridged bicyclic	 <p>Picture created by the SMARTSviewer [smartsviewer.zth.uni-hamburg.de]. Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[#6]-1~[*]~[*]~2~[*]~[#6]-[#8]-[#6](~[*]~2)-[#8]-1
2,9-dioxabicyclo [3.3.1] nonane	Bridged bicyclic	 <p>Picture created by the SMARTSviewer [smartsviewer.zth.uni-hamburg.de]. Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[*]-1~[*]~[#6]~2~[*]~[#6]-[#8]-[#6](~[*]~1)-[#8]-2
2,9-dioxabicyclo[4.2.1]nonane	Bridged bicyclic	 <p>Picture created by the SMARTSviewer [smartsviewer.zth.uni-hamburg.de]. Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[#6]-1-[#8]-[#6]-2~[*]~[*]~1~[*]~[*]~[#6]-[#8]-2
7,9-dioxabicyclo[4.2.1]nonane	Bridged bicyclic	 <p>Picture created by the SMARTSviewer [smartsviewer.zth.uni-hamburg.de]. Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[#6]-1-[#8]-[#6]-2~[*]~[*]~[*]~[#6]~1-[#8]-2
2,8-dioxabicyclo[4.2.1]nonane	Bridged bicyclic	 <p>Picture created by the SMARTSviewer [smartsviewer.zth.uni-hamburg.de]. Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[*]-1~[*]~[#6]-2-[#8]-[#6]~1~[*]~[*]~[#6]-[#8]-2
2,7-dioxabicyclo[3.2.2]nonane	Bridged bicyclic	 <p>Picture created by the SMARTSviewer [smartsviewer.zth.uni-hamburg.de]. Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[*]-1~[*]~[#6]-2-[#8]-[#6]~[*]~1~[*]~[#6]-[#8]-2

"Rule"	"Class"	"SMARTS Viewer Representation"	"SMARTS"
6,9-dioxabicyclo[3.2.2]nonane	Bridged bicyclic	<p>[#6]-1-[#8]-[#6]-2-[*]-[*]-[*]-1-[#6]-[#8]-2 Picture created by the SMARTSviewer (smartsview.zbh.uni-hamburg.de). Copyright 2018 - Center for Bioinformatics Hamburg.</p>	[#6]-1-[#8]-[#6]-2~[*]~[*]~[*]~[*]~1~[#6]-[#8]-2
7,10-dioxabicyclo[4.2.2]decane	Bridged bicyclic	<p>[#6]-1-[#8]-[#6]-2-[*]-[*]-[*]-1-[#6]-[#8]-2 Picture created by the SMARTSviewer (smartsview.zbh.uni-hamburg.de). Copyright 2018 - Center for Bioinformatics Hamburg.</p>	[#6]-1-[#8]-[#6]-2~[*]~[*]~[*]~[*]~1~[#6]-[#8]-2
2,8-dioxabicyclo[4.2.2]decane	Bridged bicyclic	<p>[*]-1~[*]~[#6]-2-[#8]-[#6]~[*]~1~[*]~[*]~[#6]-[#8]-2 Picture created by the SMARTSviewer (smartsview.zbh.uni-hamburg.de). Copyright 2018 - Center for Bioinformatics Hamburg.</p>	[*]-1~[*]~[#6]-2-[#8]-[#6]~[*]~1~[*]~[*]~[#6]-[#8]-2
2,8-dioxabicyclo[3.3.2]decane	Bridged bicyclic	<p>[#6]-1-[*]-[#6]-2-[*]-[#6]-[#8]-[#6]-[*]-2-[#8]-1 Picture created by the SMARTSviewer (smartsview.zbh.uni-hamburg.de). Copyright 2018 - Center for Bioinformatics Hamburg.</p>	[#6]-1~[*]~[*]~2~[*]~[#6]-[#8]-[#6](~[*]~2)-[#8]-1
2,9-dioxabicyclo[3.3.2]decane	Bridged bicyclic	<p>[*]-1-[*]-[*]-2-[*]-[#6]-[#8]-[#6]-[*]-1-[#6]-[#8]-2 Picture created by the SMARTSviewer (smartsview.zbh.uni-hamburg.de). Copyright 2018 - Center for Bioinformatics Hamburg.</p>	[*]-1~[*]~[*]-2~[*]~[#6]-[#8]-[#6](~[*]~1)-[#8]-[#6]~2
2,8-dioxabicyclo[3.3.3]undecane	Bridged bicyclic	<p>[#6]-1-[*]-[*]-2-[*]-[#6]-[#8]-[#6]-[*]-1-[#6]-[#8]-[*]-2 Picture created by the SMARTSviewer (smartsview.zbh.uni-hamburg.de). Copyright 2018 - Center for Bioinformatics Hamburg.</p>	[*]-1~[*]~[*]-2~[*]~[#6]-[#8]-[#6](~[*]~1)-[#8]-[#6]~[*]~2

"Rule"	"Class"	"SMARTS Viewer Representation"	"SMARTS"
[3,3]S	Spiroacetals	<p>[#6]1-[#8]C11[#6]-[#8]1</p> <p>Picture created by the SMARTSviewer [smartsviewer.zbh.uni-hamburg.de]. Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[#6]1-[#8]C11[#6]-[#8]1
[4,3]S	Spiroacetals	<p>[#6]1-[#8]C11[*]-[#6]-[#8]1</p> <p>Picture created by the SMARTSviewer [smartsviewer.zbh.uni-hamburg.de]. Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[#6]1-[#8]C11[*]-[#6]-[#8]1
[4,4]S	Spiroacetals	<p>[#6]-1-[*]C2([*]-[#6]-[#8]2)-[#8]-1</p> <p>Picture created by the SMARTSviewer [smartsviewer.zbh.uni-hamburg.de]. Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[#6]-1-[*]C2([*]-[#6]-[#8]2)-[#8]-1
[5,3]S	Spiroacetals	<p>[#6]1-[#8]C11[*]-[#6]-[#8]1</p> <p>Picture created by the SMARTSviewer [smartsviewer.zbh.uni-hamburg.de]. Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[#6]1-[#8]C11[*]-[#6]-[#8]1
[5,4]S	Spiroacetals	<p>[#6]-1-[*]C2([*]-[#6]-[#8]2)-[#8]-1</p> <p>Picture created by the SMARTSviewer [smartsviewer.zbh.uni-hamburg.de]. Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[#6]-1-[*]C2([*]-[#6]-[#8]2)-[#8]-1
[5,5]S	Spiroacetals	<p>[*]-1-[#6]-[#8]C2([*]-[#6]-[#8]2)-[#8]-1</p> <p>Picture created by the SMARTSviewer [smartsviewer.zbh.uni-hamburg.de]. Copyright: ZBH - Center for Bioinformatics Hamburg.</p>	[*]-1-[#6]-[#8]C2([*]-[#6]-[#8]2)-[#8]-1

"Rule"	"Class"	"SMARTS Viewer Representation"	"SMARTS"
[6,3]S	Spiroacetals	 <p>[#6]1-[#8]C11[*]~[*]~[*]~[#6]-[#8]1 Picture created by the SMARTS viewer (smartsview.zbh.uni-hamburg.de). Copyright 2009 - Center for Bioinformatics Hamburg.</p>	[#6]1-[#8]C11[*]~[*]~[*]~[#6]-[#8]1
[6,4]S	Spiroacetals	 <p>[#6]1-[#8]C2([*]~[*]~[#6]-[#8]2) [#8]-1 Picture created by the SMARTS viewer (smartsview.zbh.uni-hamburg.de). Copyright 2009 - Center for Bioinformatics Hamburg.</p>	[#6]1-[#8]C2([*]~[*]~[#6]-[#8]2) [#8]-1
[6,5]S	Spiroacetals	 <p>[*]1-[#6]-[#8]C2([*]~[*]~[#6]-[#8]2) [#8]-1 Picture created by the SMARTS viewer (smartsview.zbh.uni-hamburg.de). Copyright 2009 - Center for Bioinformatics Hamburg.</p>	[*]1-[#6]-[#8]C2([*]~[*]~[#6]-[#8]2) [#8]-1
[6,6]S	Spiroacetals	 <p>[*]1-[#6]-[#8]C2([*]~[*]~[#6]-[#8]2) [#8]-1 Picture created by the SMARTS viewer (smartsview.zbh.uni-hamburg.de). Copyright 2009 - Center for Bioinformatics Hamburg.</p>	[*]1-[#6]-[#8]C2([*]~[*]~[#6]-[#8]2) [#8]-1
[7,3]S	Spiroacetals	 <p>[#6]1-[#8]C11[*]~[*]~[*]~[#6]-[#8]1 Picture created by the SMARTS viewer (smartsview.zbh.uni-hamburg.de). Copyright 2009 - Center for Bioinformatics Hamburg.</p>	[#6]1-[#8]C11[*]~[*]~[*]~[#6]-[#8]1
[7,4]S	Spiroacetals	 <p>[#6]1-[#8]C2([*]~[*]~[#6]-[#8]2) [#8]-1 Picture created by the SMARTS viewer (smartsview.zbh.uni-hamburg.de). Copyright 2009 - Center for Bioinformatics Hamburg.</p>	[#6]1-[#8]C2([*]~[*]~[#6]-[#8]2) [#8]-1

"Rule"	"Class"	"SMARTS Viewer Representation"	"SMARTS"
[7,5]S	Spiroacetals	<p>Picture created by the SMARTSviewer (smartsviewer.zth.uni-hamburg.de). Copyright: 2011 - Center for Biotechnology Hamburg.</p>	[*]-1~[#6]-[#8]C2([*]~1) [*]~[*]~[*]~[*]~[#6]-[#8]2
[7,6]S	Spiroacetals	<p>Picture created by the SMARTSviewer (smartsviewer.zth.uni-hamburg.de). Copyright: 2011 - Center for Biotechnology Hamburg.</p>	[*]-1~[*]~[*]C2([*]~[*]~[*]~[*]~[#8]2)[#8]-[#6]-1
[7,7]S	Spiroacetals	<p>Picture created by the SMARTSviewer (smartsviewer.zth.uni-hamburg.de). Copyright: 2011 - Center for Biotechnology Hamburg.</p>	[*]-1~[*]~[#6]-[#8]C2([*]~[*]~1) [*]~[*]~[*]~[*]~[#6]-[#8]2
[8,3]S	Spiroacetals	 <p>Picture created by the SMARTSviewer (smartsviewer.zth.uni-hamburg.de). Copyright: 2011 - Center for Biotechnology Hamburg.</p>	[#6]1- [#8]C11[*]~[*]~[*]~[*]~[*]~[#6]-[#8]1
[8,4]S	Spiroacetals	<p>Picture created by the SMARTSviewer (smartsviewer.zth.uni-hamburg.de). Copyright: 2011 - Center for Biotechnology Hamburg.</p>	[#6]-1~[*]C2([*]~[*]~[*]~[*]~[#8]2)[#8]-1
[8,5]S	Spiroacetals	<p>Picture created by the SMARTSviewer (smartsviewer.zth.uni-hamburg.de). Copyright: 2011 - Center for Biotechnology Hamburg.</p>	[*]-1~[#6]-[#8]C2([*]~1) [*]~[*]~[*]~[*]~[#6]-[#8]2

"Rule"	"Class"	"SMARTS Viewer Representation"	"SMARTS"
[8,6]S	Spiroacetals	<p>(*)-1-(*)-(*)C2((*)-*)-3(*-1-(*)-1-([#6]-[#8]2)[#8]-[#6]-1)</p> <p>Picture created by the SMARTS viewer (smartsview.zth.uni-hamburg.de).</p>	[*]-1~[*]~[*]C2([*]~[*]~[*]~[#8]2)[#8]-[#6]~1
[8,7]S	Spiroacetals	<p>(*)-1-(*-[#6]-[#8]C2((*)-*)-3(*-1-(*)-1-([#6]-[#8]2)[#8]-[#6]-1))</p> <p>Picture created by the SMARTS viewer (smartsview.zth.uni-hamburg.de).</p>	[*]-1~[*]~[#6]-[#8]C2([*]~[*]~[*]~[*]~[*]~[#6]-[#8]2)
[8,8]S	Spiroacetals	<p>(*)-1-(*)-(*)C2((*)-*)-3(*-1-(*)-1-([#6]-[#8]2)[#8]-[#6]-1)</p> <p>Picture created by the SMARTS viewer (smartsview.zth.uni-hamburg.de).</p>	[*]-1~[*]~[*]~[*]C2([*]~[*]~[*]~[#8]2)[#8]-[#6]~[*]~1